#15/Appellant's Brief

PATENT
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

On October 1, 2003

TOWNSEND and TOWNSEND and CREW LLP

By: _____
Jodie M. Rivas

L.E. 10-16-03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of:	Examiner: VANEL FRENEL
AMIR ABOLFATHI et al.	Art Unit: 3626
Application No.: 09/534,461	
Filed: March 24, 2000 For: HEALTH-CARE E-COMMERCE SYSTEMS AND METHODS	**APPELLANT'S BRIEF UNDER 37 C.F.R. § 1.192**

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant offers this Appeal Brief in furtherance of the Notice of Appeal filed on August 1, 2003 in the above-referenced patent application. This Appeal Brief is submitted in triplicate as required by 37 C.F.R. § 1.192(a). Please deduct the requisite fee, pursuant to 37 C.F.R. § 1.17(c), of $330 from deposit account 20-1430, and deduct any additional fees or credit any excess fees associated with the Appeal Brief to such deposit account. Appendix A, attached hereto, contains a copy of all claims pending in this case.

REAL PARTY IN INTEREST:

All right, title, and interest in the subject invention and application are assigned to Align Technology, Inc., having offices at 881 Martin Avenue, Santa Clara, California 95050. Therefore, Align Technology, Inc. is the real party interest.

RELATED APPEALS AND INTERFERENCES

No other appeals or interferences are known which will directly affect, or be directly affected by, or have a bearing on the Board's decision in the pending appeal.

STATUS OF THE CLAIMS

Claims 1-24 were originally presented in the application. Claims 1-24 have been rejected. Claims 1-24 are the subject of this appeal. No other claims are pending.

STATUS OF AMENDMENTS

A Final Office Action was mailed on March 5, 2003. A response without amendment amendment under 37 C.F.R. § 1.116 in response to the Final Office Action on June 2, 2003 was filed. A copy of all the pending claims is provided in Appendix A attached hereto.

SUMMARY OF THE INVENTION

The present invention is related generally to the field of health-care electronic commerce and more particularly relates to methods and systems for providing dental and orthodontic services over an electronic commerce community. Application filed March 24, 2000 (Application), page 3, lines 6-17. The electronic community generally comprises a server-based network of patients, treating professionals, and health-care data. *Id.*

The appealed claims are directed at a virtual health-care electronic commerce community having a network for communicating information relating to the community and comprising manipulable three-dimensional (3-D) computer models of a patients teeth. Claim 1; Application, page 3, lines 6-10. The community also has one or more patients coupled to the network and one or more treating professionals that can receive and manipulate the 3D model of the patients teeth. *Id.* The system further comprises a server capable of storing data such as the

computer 3D models for each patient and performing data visualization in response to user requests. *Id.*

The appealed claims are also directed to a computer-implemented method for performing dental-related electronic commerce. Claim 11; Application, page 4, line 1. The method comprises transmitting teeth data associated to a patient from a dental server to a treating professional computer over the Internet. *Id.*, page 4, lines 1-3. A three-dimensional computer model of the teeth is displayed at the treating professional computer using a browser. *Id.*, page 4, lines 3-5. A treating professional subsequently manipulates the three-dimensional computer model of the teeth using the browser. *Id.*, page 4, lines 5-6. The computer model is then transmitted from the treating professional computer to the server. *Id.*, page 4, lines 6-7. Finally, an appliance to treat the patient is generated based on the computer model of the teeth. *Id.*, page 4, lines 7-8.

Further on appeal are claims directed to a server to support a health-care electronic commerce community with one or more patients and one or more service providers. Claim 21; Application, page 4, lines 20-21. The server comprises a processor adapted to communicate with a network and coupled to a data storage device. *Id.*, page 4, line 21 to page 5, line 1. The data storage device is adapted to store data including a manipulable 3-D dental model for each patient. *Id.* The server further comprises software to communicate 3-D patient data in response to a client request. *Id.*, page 5, lines 1-2.

ISSUES

I. Whether claims 1-24 are unpatentable under 35 U.S.C. § 103(a) over U.S. Patent No. 6,283,761 issued to Joao in view of U.S. Patent No. 5,683,243 issued to Andreiko et al.

GROUPING OF THE CLAIMS

Appellant submits that the claims do not stand or fall together. Claims 1, 11 and 21 each independently define elements patentable over the cited art. Hence only independent claim 1 and dependent claims 2-10 stand together; independent claim 11 and dependent claims 12-20 stand together; and independent claim 21 and dependent claims 22-24 stand together.

ARGUMENT

I. Whether claims 1-24 are unpatentable under 35 U.S.C. § 103(a) over Joao in view of Andreiko et al.

In the Final Office Action dated March 5, 2003, claims 1-24 were rejected under Section 103(a) as allegedly being unpatentable over U.S. Patent No. 6,283,761 issued to Joao in view of U.S. Patent No. 5,683,243 issued to Andreiko et al. Appellant respectfully traverses this rejection for the following reasons discussed below.

The present rejection does not establish *prima facie* obviousness under 35 U.S.C. § 103 and M.P.E.P. §§ 2142-2143. The Examiner bears the initial burden to establish and support *prima facie* obviousness. *In re Rinehart*, 189 U.S.P.Q. 143 (CCPA 1976). To establish *prima facie* obviousness, three basic criteria must be met. M.P.E.P. § 2142. First, the Examiner must show some suggestion or motivation, either in the Andreiko et al. reference or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings so as to produce the claimed invention. M.P.E.P. § 2143.01; *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Secondly, the Examiner must establish that there is a reasonable expectation of success for the modifications. M.P.E.P. § 2142. Thirdly, the Examiner must establish that the prior art references, alone or in combination, teach or suggest all the claim limitations. M.P.E.P. §2143.03; *In re Royka3*, 180 U.S.P.Q. 580 (CCPA 1974). The teachings, suggestions, and reasonable expectations of success must be found in the prior art, rather than in appellant's disclosure. *In re Vaeck*, 20 U.S.P.Q.2d 1438 (CAFC 1991). Appellant respectfully submits that a *prima facie* case of obviousness has not been met because the Examiner's rejection fails on at least two of the above requirements.

First, neither Joao nor Andreiko et al. references, alone or in combination, teaches or suggests all the claim limitations of independent claim 1. In particular, independent claim 1 recites, in part, a network wherein one or more treating professionals receive and manipulate 3-D computer models of one or more patient's teeth, the models and other information being stored on a server coupled to the network, the server performing patient data visualization in response to a user request. As the examiner concedes, the Joao reference fails to disclose both the 3-D

computer models of teeth manipulable by a treating professional, and a server performing patient data visualization in response to a user request. Final Office Action dated March 5, 2003, page 3. To cure this deficiency, the Examiner relies on Andreiko et al. for suggesting "manipulable three-dimensional (3D) computer models of a patient's teeth to the community; and each patient including 3D computer models of teeth and performing patient data visualization in response to a user request." *Id.* In support of this determination, the examiner cites Figs. 3A, 3B, and 6 and Col. 39, lines 1-67 to Col. 40, line 5 in the Andreiko reference.

The Examiner's reliance on Andreiko for teaching manipulable 3-D models is misplaced. Appellant has reviewed the Andreiko reference in detail and finds no disclosure anywhere in the reference of 3-D computer models of a patient's teeth that are manipulable by the treating physician. The Andreiko reference is directed to an apparatus for automatically designing and manufacturing custom orthodontic appliances, particularly conventional braces (i.e. brackets, archwires, jigs). In Andreiko, the orthodontist prepares a model of the patient's mouth, prescribes a treatment, and then communicates the information, including the model, prescription, and patient records, to an appliance design facility where the information is input into a computer for analysis. Col. 20, line 41 to Col. 21, line 8; Fig. 2. Figs. 3A, 3B, and 6, cited by the Examiner, simply show digital models of teeth, while Cols. 39-40, also cited by the examiner, relate to the digital probe tooth profile step to produce a digitized computer model of teeth. The communication of the patient data is one-way from the doctor to the appliance design facility, and there is no need for manipulation of the model or feedback by the doctor. At most, the doctor may convert the information to computer readable form prior to transmitting the information to the appliance design facility. Col. 21, lines 9-15. In contrast, claim 1 requires a network to communicate information wherein one or more treating professionals receive and manipulate the 3-D computer models of a patient's teeth.

In further support of combining the Joao with Andreiko references, the examiner states that "a CAD program generates 3-D images that can be manipulated by a user." Final Office Action dated March 5, 2003, page 11. Appellant notes that although a 3-D image generated be a CAD program can be manipulated by a user, nowhere in the Andreiko reference

is there a suggestion or teaching of manipulating the 3-D computer model of the patient's teeth, particularly by a treatment professional. Even during the analysis, design and manufacturing steps of the Andreiko disclosure, the 3-D computer model is not manipulated. Rather, the data from the computer model is used to generate reference points, or "landmarks" of the tooth profiles. Col. 24, lines 24-39. These reference points are then analyzed to calculate additional parameters such as final tooth position and appliance design. *Id.* Hence, no manipulation of the actual 3-D model itself is performed.

Additionally, nothing in Andreiko shows a server coupled to the network, particularly a server storing data for each patient including 3-D computer models of teeth and performing patient data visualization in response to a user request. In fact, the word "server" does not exist in Andreiko. Because the patient data is sent one-way to the appliance design facility, there is no need for a server to facilitate patient data visualization and feedback or from the patients and physicians. Therefore, Andreiko, either alone or in combination with Joao, fails to teach at least two of the required limitations of claim 1: one or more treating professionals coupled to the network to receive and manipulate the computer model of the patient's teeth, and a server storing data for each patient including 3-D computer models of teeth and performing patient data visualization in response to a user request.

Similarly, claim 11 requires transmitting teeth data associated to a patient from a dental server to a treating professional computer over the Internet upon an authorized request; displaying a three-dimensional computer model of the teeth at the treating professional computer using a browser; allowing a treating professional to manipulate the three-dimensional computer model of the teeth using the browser; transmitting the computer model from the treating professional computer to the server; and generating an appliance to treat the patient based on the computer model of the teeth. As noted above, neither the Joao or Andreiko references teach 3-D computer models of teeth that are manipulable by a treatment professional, particularly the manipulation of the 3-D model by use of a browser.

Claim 21 requires a server to support a health-care electronic commerce community with one or more patients and one or more service providers, comprising: a processor adapted to communicate with a network; a data storage device coupled to the processor and adapted to store data including manipulable 3-D dental model for each patient; and software to communicate 3-D patient data in response to a client request. As conceded by the examiner, Joao fails to disclose "manipulable 3-D computer model for each patient and a software to communicate 3D patient data in response to a client request." Final Office Action dated March 5, 2003, pages 9 and 10. To cure this deficiency, the Examiner relies on Andreiko et al. and sites Col. 39, lines 1-67 to Col. 40, line 5 in the Andreiko reference for support. As noted above for claim 1, such reliance is misplaced because Cols. 39-40 relate to the digital probe tooth profile step to produce a digitized computer model of teeth. Furthermore, neither Joao nor Andreiko shows a data storage device coupled to the processor and adapted to store data including manipulable 3D dental model for each patient nor software to communicate 3D patient data in response to a client request over the network.

Secondly, Appellant notes that no motivation or suggestion, either in the cited art references or in the knowledge generally available to one of ordinary skill in the art, has been cited by the Examiner to modify the Joao and Andreiko et al. references so as to produce the claimed invention. As noted above, the Andreiko et al. reference fails to teach or suggest a network wherein one or more treating professionals are coupled to the network to receive and manipulate a computer model of a patient's teeth, or a server storing data for each patient including 3-D computer models of teeth and performing patient data visualization in response to a user request. Even assuming that Andreiko teaches such limitations, no evidence has been pointed to in either the Andreiko or Joao references for any suggestion or motivation for combining the references.

The Examiner asserts that it would have been obvious to have included the features of Andreiko within the system of Joao "with the motivation of providing three dimensional imaging of the teeth and jaw of the patient is carried with laser or other scanner to form full three dimensional images of the teeth and jaw of the patient." Final Office Action

dated March 5, 2003, page 3. This assertion, in addition to being vaguely intelligible, is also misplaced. In particular, the three dimensional imaging of the teeth and jaw of the patient as taught by Andreiko is only used to transmit data to the appliance manufacturing facility to generate the custom appliances. Col. 12, lines 48-51. The Andreiko application does not remotely suggest any sort of feedback between the treating physicians and/or the patients as to the 3-D models. In fact, the Andreiko et al. reference teaches away from Applicant's invention as Andreiko et al. teaches one-way transmission of data from the doctor to the appliance fabrication facility. One skilled in the art would have been generally discouraged from using an iterative approach wherein one or more treatment professionals manipulate the 3-D model to formulate a treatment for the patient's teeth as claimed in the present application.

Appellant points out that the Examiner bears the initial burden of factually establishing and supporting any *prima facie* conclusion of obviousness. *In re Rinehart*, 189 U.S.P.Q. 143 (CCPA 1976); M.P.E.P. § 2142. If the Examiner does not produce a *prima facie* case, the Applicant is under no obligation to submit evidence of nonobviousness. *Id.* In the instant case, the Examiner has not pointed to any evidence in Andreiko et al., or how knowledge of those skilled in the art, provide a suggestion or motivation to modify the reference teaching so as to produce the claimed invention of claim 1, 11, and 21. See *In re Zurko* , 59 U.S.P.Q.2d 1693 (Fed. Cir. 2001) ([I]n a determination of patentability .... the Board cannot simply reach conclusions based on its understanding or experience - or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings).

Under *Vaeck*, absent any evidence of a cited suggestion or reasonable motivation in the Andreiko et al. reference, or knowledge of those skilled in the art, for a network wherein one or more treating professionals are coupled to the network to receive and manipulate a computer model of a patient's teeth, and a server storing data for each patient including 3-D computer models of teeth and performing patient data visualization in response to a user request, *prima facie* obviousness of claims 1, 11 and 21 (and dependent claims 2-10, 12-20, and 22-24) has not been established.

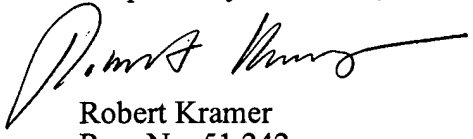
Hence, Joao and Andreiko, singly or in combination with each other, can neither anticipate nor render the invention obvious. Withdrawal of the §103(a) rejection and allowance of claims 1-24 is therefore respectfully requested.

CONCLUSION

Appellant believes that the above discussion is fully responsive to all grounds of rejection set for the in the Final Office Action dated March 5, 2003.

If for any reasons the Examiner believes a telephone conference would in any way expedite resolution of the issues raised in this appeal, the Examiner is invited to telephone the undersigned at 650-324-6340.

Respectfully submitted,



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APPENDIX A

COMPLETE SET OF PENDING CLAIMS

1. (Amended) A virtual health-care electronic commerce community, comprising:

a network to communicate information comprising manipulable three-dimensional (3D) computer models of a patient's teeth relating to the community;

one or more patients coupled to the network;

one or more treating professionals coupled to the network to receive and manipulate the computer model of the patient's teeth; and

a server coupled to the network, the server storing data for each patient including 3D computer models of teeth and performing patient data visualization in response to a user request.

2. (As filed) The community of claim 1, wherein the treating professional views one or more of the following patient data visualization over the network: a right buccal view; a left buccal view; a posterior view; an anterior view; a mandibular occlusal view; a maxillary occlusal view; an overjet view; a left distal molar view; a left lingual view; a lingual incisor view; a right lingual view; a right distal molar view; an upper jaw view; and a lower jaw view.

3. (As filed) The community of claim 1, wherein the treating professionals include dentists or orthodontists.

4. (As filed) The community of claim 1, further comprising one or more partners coupled to the network.

5. (As filed) The community of claim 4, wherein the partners include a financing partner.

6. (As filed) The community of claim 4, wherein the partners include a supplier.

7. (As filed) The community of claim 4, wherein the partners include a delivery company.

8. (As filed) The community of claim 1, wherein the treating professionals perform office management operations using the server.

9. (As filed) The community of claim 8, wherein the office management operations include one or more of the following: patient scheduling, patient accounting, and claim processing.

10. (As filed) The community of claim 1, wherein the patients and the treating professionals access the server using browsers.

11. (As filed) A computer-implemented method for performing dental-related electronic commerce, comprising:

transmitting teeth data associated a patient from a dental server to a treating professional computer over the Internet upon an authorized request;

displaying a three-dimensional computer model of the teeth at the treating professional computer using a browser;

allowing a treating professional to manipulate the three-dimensional computer model of the teeth using the browser;

transmitting the computer model from the treating professional computer to the server; and

generating an appliance to treat the patient based on the computer model of the teeth.

12. (As filed) The method of claim 11, further comprising providing financing options for the patient using one or more financing partners.

13. [14.] (As filed) The method of claim 11, further comprising offering an on-line shop geared to the patient's dental requirements.

14. [15.] (As filed) The method of claim 11, further comprising providing office management utilities for the treating professional.

15. [16.] (As filed) The method of claim 14, wherein the office management utilities include one or more of the following: patient scheduling, patient accounting, and claim processing.

16. [17.] (As filed) The method of claim 11, wherein allowing a treating professional to manipulate the three-dimensional computer model of the teeth using the browser further comprises displaying a plurality of dental views.

17. (As filed) The method of claim 16, wherein the dental views include one or more of the following: a right buccal view; a left buccal view; a posterior view; an anterior view; a mandibular occlusal view; a maxillary occlusal view; an overjet view; a left distal molar view; a left lingual view; a lingual incisor view; a right lingual view; a right distal molar view; an upper jaw view; and a lower jaw view.

18. (As filed) The method of claim 11, wherein allowing a treating professional to manipulate the three-dimensional computer model of the teeth using the browser further comprises clicking on a tooth to adjust its position.

19. (As filed) The method of claim 18, further comprising displaying x, y and z axis to allow the treating professional to adjust the position of the tooth.

20. (As filed) The method of claim 11, further comprising providing supplemental services to the patient, including teeth whitening services.

21. (Amended) A server to support a health-care electronic commerce community with one or more patients and one or more service providers, comprising:

a processor adapted to communicate with a network;

a data storage device coupled to the processor and adapted to store data including manipulable 3D dental model for each patient; and

software to communicate 3D patient data in response to a client request.

22. (As filed) The server of claim 21, further comprising a browser adapted to receive the client request and transmitting the request to the server.

23. (As filed) The server of claim 22, wherein the browser further comprises a viewer plug-in to visualize patient data in 3D.

24. (As filed) The server of claim 21, wherein the providers service one or more of the following health-care applications: dentistry applications, cosmetic augmentation, hair-care enhancements, liposuction, plastic or reconstructive surgery.